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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/021,195 | 10/30/2001 | Kenneth S. Collins | 306 D12 | 1196 |

32588 7590 01/24/2003

APPLIED MATERIALS, INC.
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EXAMINER

ALEJANDRO MULERO, LUZ L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1763

DATE MAILED: 01/24/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-4

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/021,195 | | COLLINS ET AL. | |
| | Examiner | | Art Unit | |
| | Luz L. Alejandro | | 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: it appears that in line 4, the colon should be replaced with a semicolon. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-17 and 19-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Sandhu, U.S. Patent 5,599,396.

Sandhu shows the invention as claimed including for use in a plasma reactor including a plasma reactor chamber 20, a workpiece support 36 for holding a workpiece inside said chamber during processing and an inductive antenna 35; a window electrode 30 proximal a wall of said chamber and comprising a portion of said wall and said ceiling, said antenna 35 and wall 30 being positioned adjacently and said antenna facing said support, said window electrode being operable as: a capacitive electrode accepting RF power from a RF power source (see fig. 1) to capacitively couple plasma

source power into the chamber; and a window electrode passing RF power therethrough from said antenna into said chamber to inductively couple plasma source power into the chamber, said window electrode comprising a sidewall portion of said reactor enclosure generally perpendicular to and surrounding said support (see fig. 1 and its description).

With respect to claim 2, note that the material used in the electrode to impart conductivity can range in conductivity from insulating to conducting which encompasses semiconducting properties.

Concerning claims 4 and 7, note that the RF power supply is connected to the workpiece support 36 and the window electrode 30.

Regarding claim 8, the claims are directed to method limitations instead of apparatus limitations and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention. The window electrode of the apparatus of Sandhu is capable of operating simultaneously as a window to the antenna and as a counter electrode to the support (see, for example, col. 2-lines 35-41).

Claims 1, 3, 5-6, 9-14, 19-20, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Blalock, U.S. Patent 5,779,849.

Blalock shows the invention as claimed including for use in a plasma reactor including a plasma reactor chamber 16, a workpiece support 22 for holding a workpiece inside said chamber during processing and an inductive antenna 18 with a RF power supply 34 connected thereto; a window electrode 26 proximal a wall of said chamber and comprising a portion of said wall and said ceiling, said antenna 18 and wall 12 being positioned adjacently and said antenna facing said support, said window electrode being operable as: a capacitive electrode accepting RF power from a RF power source (see fig. 1) to capacitively couple plasma source power into the chamber; and a window electrode passing RF power therethrough from said antenna into said chamber to inductively couple plasma source power into the chamber, said window electrode comprising a sidewall portion of said reactor enclosure generally perpendicular to and surrounding said support (see figs. 1-3 and their description).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu, U.S. Patent 5,599,396 as applied to claims 1-17 and 19-26 above, and further in view of Wolf et al., "Silicon Processing for the VLSI Era Volume 1: Process Technology".

Sandhu is applied as above but fails to expressly disclose the semiconductor electrode being composed of silicon. Wolf et al. discloses that electrodes in plasma processing apparatuses can be composed of a variety of materials including silicon (see paragraph bridging pages 568-569). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sandhu as to comprise a silicon electrode because Wolf et al. teaches this is a suitable type of electrode for a plasma processing apparatus.

Claims 2, 4, 7-8, 15-17, 21-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blalock, U.S. Patent 5,779,849 as applied to claims 1, 3, 5-6, 9-14, 19-20, and 25 above, and further in view of Sandhu, U.S. Patent 5,599,396.

Blalock is applied as above but fails to expressly disclose the window electrode comprising a semiconductor electrode and wherein the RF power source supply is connected across said workpiece support and said window electrode. Sandhu discloses the material used in the capacitive electrode 30 to impart conductivity can range in conductivity from insulating to conducting which encompasses semiconducting properties and an RF power source supply (see fig. 1) connected across a workpiece support 36 and window electrode 30 (see col. 1-line 63 to col. 3-line 30). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Blalock so as to comprise a semiconductor electrode as the window electrode and a RF power supply connected both across the wafer support and the window electrode because the electrode of

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Sandhu is shown as suitable as a window electrode and the use of one RF power supply for both the workpiece and window electrode will reduce the amount of space required for the apparatus.

Regarding claim 8, the claims are directed to method limitations instead of apparatus limitations and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention. The window electrode of the apparatus of Blalock is capable of operating simultaneously as a window to the antenna and as a counter electrode to the support.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blalock, U.S. Patent 5,779,849 in view of Sandhu, U.S. Patent 5,599,396 as applied to claims 2, 4, 7-8, 15-17, 21-24, and 26 above, and further in view of Wolf et al., "Silicon Processing for the VLSI Era Volume 1: Process Technology".

Blalock and Sandhu are applied as above but fail to expressly disclose the semiconductor electrode being composed of silicon. Wolf et al. discloses that electrodes in plasma processing apparatuses can be composed of a variety of materials including silicon (see paragraph bridging pages 568-569). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Blalock modified by Sandhu to comprise a silicon electrode

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because Wolf et al. teaches this is a suitable type of electrode for a plasma processing apparatus.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-67 of U.S. Patent No. 6,077,384. Although the conflicting claims are not identical, they are not patentably distinct from each other because, for example, they contain minor differences in scope such as the connection of RF power sources to different components of the apparatus which would have been well within the scope of one of ordinary skill in the art at the time of the invention.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 305-4545. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills, can be reached on 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 872-9310 for regular communications and 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.


Luz L. Alejandro
Patent Examiner
Art Unit 1763

January 21, 2003